

Banking: Simple Interest

2/18/16

- 1) WE: Discuss page 1 of the handout.
- 2) PARTNERS: Choose who is A partner and who is B partner. Figure out which letters go where in the oval.
- 3) One Partner from each pairing goes to the board to draw their oval. WE compare the ovals and discuss similarities and differences.
- 4) P: work together to fill the boxes with the requested equations. The other Partner from each pairing writes one of the equations on the board.
- 5) W: Discuss the equations to make sense of them.
- 6) P: Work to solve question #1a.
- 7) P: Two partners from different pairings come to the board to write up their solution.
- 8) W: Compare solutions and approaches to solving
- 9) P: Solve 1b.

Banking: Simple Interest

2/18/16

10) Change Partners. Choose who is A partner and who is B partner.

11) W: Discuss what we know and need to find out for #2.

12) P: With your new partner, solve #2.

13) P: One member from two partnerships comes to the board to write up their solution.

14) W: Compare solutions and approaches to solving

15) Half of the partnerships will solve for AmEx interest while the other half solve for Student Loan interest.

16) Partners A pair up and partners B pair up. Each partner in the new pair of partners explains their solution for their half of the problem to the other.

17) Rejoin your A/B partner and compare the approaches to solving the half of the problem you did NOT work on together.

18) W: Discuss as a group

IWBAT

- define simple interest
- understand simple interest and the formula
 $I = prt$
- practice computing a balance in an account incorporating interest.

Via

- Capturing notes on my graphic organizer/note frame
- Whole class discussions to introduce and clarify key concepts
- Completing practice problems collaboratively with teacher support

Banking: Simple Interest

Interest - an amount of money the bank pays you on the money you deposited

Simple interest - interest paid only on your deposit

$$I = prt$$

Interest = principal · rate · time

$$\text{Total value} = p + I$$

(Future value)

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Five year old Johanna deposits \$100 of Christmas money in a savings account which pays 3% simple interest compounded annually. With no further deposits or withdrawals, how much will her account be worth at Christmas when she is 18?

$$FV = P + I$$

$$= 100 + .03 \cdot 13 \cdot 100$$

$$I = P \cdot r \cdot t = 100 + 39$$

$$FV = \$139$$

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Compounding period

annually	1 time per year
semiannually	2
quarterly	4
monthly	12
weekly	52
daily	365

Periodic Interest Rate

$$\frac{\text{Int. rate}}{\# \text{ compounding periods per year}}$$

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Jessy deposits \$300 in a savings account which pays 3% simple interest compounded monthly. With no further deposits or withdrawals, how much will the account be worth in eight years?

$$FV = \$300 + \frac{.03 \cdot 96 \cdot 300}{12}$$

$$\begin{aligned} FV &= \$300 + .03 \cdot 8 \cdot 300 \\ &= \$372 \end{aligned}$$

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Define simple interest in your own words.

interest paid to you only on
your deposits, the interest
paid does not collect interest

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Practice: 4.1.2

	Simple Interest Rate	Frequency of Simple Interest Calculation	Number of Periods per Year	Periodic Interest Rate	Number of Years	Total Number of Periods
Example	3.5%	Annually	1	3.5%	5	5
1. CD A	4.4%	Quarterly	4	1.1%	12	48
2. CD B	7.2%	Monthly	12	0.6%	8	96
3. CD C	5.6%	Semiannually	2	2.8%	15	30

SI

$\div n$

= PIR

n

$\times yr = \text{Total per}$

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Practice: 4.1.2

	Principal	Periodic Interest Rate	Number of Periods	Interest Earned	Future Value of Principal
Example	\$8000	0.4%	60	\$1920	\$9920
4. Deposit A	\$6000	2.4%	14	\$2016	\$8016
5. Deposit B	\$9000	1.3%	16	\$1872	\$10,872
6. Deposit C	\$7000	0.5%	72	\$2520	\$9520

$$P \cdot r \cdot t = I \quad + P = FV$$

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Practice: 4.1.2

7) \$1500, comp. quarterly, 3 mo., \$1509

Annual % = ?

$$\begin{array}{l} \text{1 quarter} = 3 \text{ mo}, \$9 = \text{one period of interest} \\ \frac{\$1500 \times \overset{r}{9} \times \overset{t}{1}}{\$1500} = \frac{\$9}{\$1500} \end{array}$$

$$\begin{array}{l} \% = .006 \\ \times 4 \end{array}$$

$$\begin{array}{l} \text{Annual} = .024 \\ = 2.4\% \end{array}$$

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Vocabulary: Appendix A.3 Key Terms
Practice: 4.1.2

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Exponential Growth

2/22/16

Calculate simple interest

Justina opened a savings account with a deposit of \$1,000. Saving for college, she left the money untouched from the time she was 12 until she was 18. This account paid 3.6% annual simple interest compounded quarterly. How much did Justina have in this account for college when she was ready to withdraw the funds?

$$FV = 1000 + \frac{.036}{4} \cdot 24 \cdot 1000$$
$$FV = \$1216$$

Banking: Exponential Growth

Review of exponents

$$f(x) = b^x$$

$$b \cdot b \cdots$$

$$f(3) = b^3 = b \cdot b \cdot b$$

$$f(x) = b^x = \overbrace{b \cdots b}^x$$



IWBAT

- evaluate exponential expressions
- define the concepts of exponential growth and exponential decay.

Via

- Capturing notes on my graphic organizer/note frame
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Banking: Exponential Growth

$$f(x) = a * b^x$$

a = initial amount (principal)

b = rate of change

x = time (number of periods)

Growth: $b > 1$

Evaluate:

$$a = 500$$

$$b = 1.05$$

$$x = 24$$

5% growth

$$f(24) = 500(1.05)^{24}$$

$$f(24) = 1612.55$$

Decay: $0 < b < 1$

Evaluate:

$$a = 500$$

$$b = 0.65$$

$$x = 24$$

35% decay

$$f(24) = 500(0.65)^{24}$$

$$f(24) = 0.016$$

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Exponential Growth

Rice problem

Linear growth:

Day 1: 1 grain

Day 2: 2 grains +1

Day 3: 3 grains +1 ...

Exponential growth:

Day 1: 1 grain

Day 2: 2 grains $\times 2$

Day 3: 4 grains $\times 2$...

On day 30, how many grains of rice do you have?

$$f(30) = 30 \text{ grains}$$

$$f(x) = 1(2)^x$$

$$f(30) = 1(2)^{30}$$

$$f(30) =$$

$$1,073,741,824 \text{ grains}$$

$$2^{30} = 22,519,340,290,000,000,000,000,000,000,000$$

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Exponential Growth

$$f(t) = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$f(6) = 1000\left(1 + \frac{.036}{4}\right)^{4 \cdot 6}$$

$$f(6) = 1000(1 + .009)^{24}$$

$$f(6) = \$1239.90$$

$$\begin{array}{r} 1216 \\ \hline \$23.90 \end{array}$$

As $n \Rightarrow \infty$,

$$f(t) = Pe^{rt}$$

$$f(6) = 1000e^{(.036 \cdot 6)}$$

$$f(6) = \$1241.10$$

09/18/15

P = principal

r = annual (APR)

n = Number of
compounding
periods per yr

t = time (yr)

$$f(x) = a * e^x$$

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Exponential Growth

Vocabulary: Appendix A.3 Key Terms

Practice: 4.2.2

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Compound Interest

2/23/16

Evaluate the exponential expressions

$$f(x) = 2^x$$

$$g(x) = \left(\frac{1}{2}\right)^x$$

$$f(2) = 2^2 = 4$$

$$g(2) = \left(\frac{1}{2}\right)^2 = \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4} \quad (.25)$$

$$f(8) = 2^8 = 256$$

$$g(8) = \left(\frac{1}{2}\right)^8 = \frac{1^8}{2^8} = \frac{1}{256}$$

$$f(2) * g(2) = 1$$

IWBAT

- practice using the formula $FV = p(1 + r)^n$ and
- explore continuous compounding as an example of exponential growth.

Via

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4.3 Compound Interest

Define compound interest for a general number of periods.

$$f(t) = P\left(1 + \frac{r}{n}\right)^{nt} \quad FV = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$P = \$2,500$$

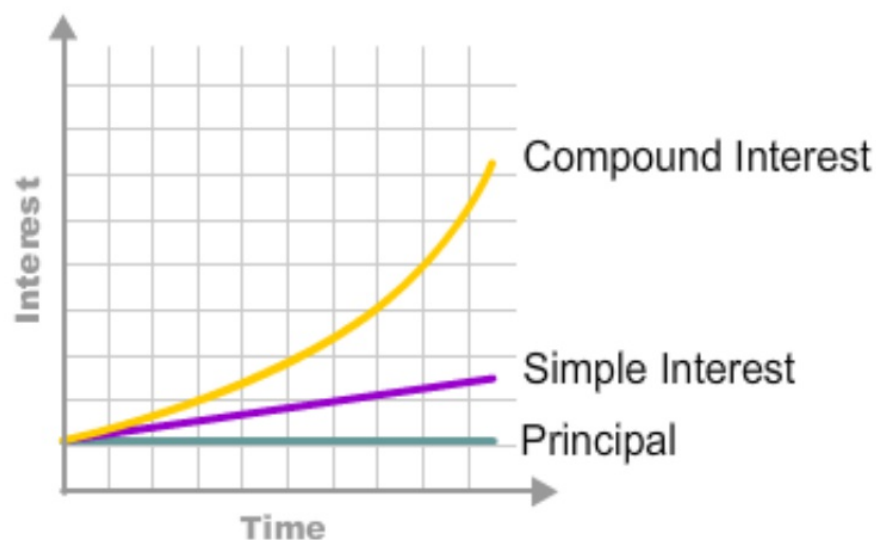
$$r = 4\%$$

$$t = 10 \text{ yr.}$$

$$n = 1, 4, 12, 365$$

$$f(10) = 2500 \left(1 + \frac{0.04}{4}\right)^{(4 \cdot 10)}$$

$$f(10) = FV = \$3722.15$$



Banking: Compound Interest

Compound interest table

Initial investment: \$12,000 at 10%

Frequency of compounding	5 years	10 years	15 years	20 years
Annually	\$19,326.12	\$31,124.91	\$50,126.98	\$80,730
Quarterly	\$19,663.40	\$32,220.77	\$52,797.48	\$86,514.81
Monthly	\$19,743.71	\$32,484.50	\$53,447.03	\$87,936.88
Daily	\$19,783.30	\$32,614.91	\$53,769.22	\$88,644.39

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking: Compound Interest

Continuous compounding

$$f(t) = Pe^{rt} \quad FV = Pe^{rt}$$

$$P = \$2,500$$

$$r = 4\%$$

$$t = 10 \text{ yr.}$$

$$f(10) = 2500 e^{(.04 \cdot 10)}$$

$$FV = \$3729.56$$

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking: Compound Interest

TVM solver (yellow calc.)

$P = \$2500$
 $I\% = 4\%$
 $t = 10\text{yr}$
 $\text{Comp} = 4$
1 \$ 3700.61
365 \$ 3729.48
12 \$ 3727.08

APPS - Finance - TVM Solver

$n = 10$

$I\% = 4$

$PV = -2500$

$PMT = 0$

$FV = \text{ALPHA} + \text{Enter } \3722.15

$P/Y = 1$

$C/Y = 4$

$PMT = \boxed{\text{END}}$

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking: Compound Interest

Vocabulary: Appendix A.3 Key Terms

Practice: 4.3.2

Quiz 4.1.2

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking Unit

2/24/16

Unit Project

- Choose a bank or credit union in Denver
- Research savings accounts & checking accounts
- Present findings to class via MS Powerpoint or Google Presentation (1 slide about institution + 1 slide per account) + Analysis
- Due Tuesday, 3/08/2016 p.5
- Due Wednesday, 3/09/16 p.1

Banking Unit

Unit Project

What you need to find out:

- Are there membership limitations for the institution?
- What types of accounts are available?
- What tools come with the accounts or membership?
- Are there restrictions on certain accounts?
- What incentives are there on the accounts?

Analysis:

- Which savings account and which checking account would serve you best over the next five years?
 - Answer in a well-reasoned paragraph.
 - Separate documents from the presentation

Banking Unit

Unit Project Example Institutions

Banks

- FirstBank
- US Bank
- Key Bank
- Chase Bank
- BBVA Compass Bank
- Citywide Bank
- Colorado Business Bank
- The Bank of Denver
- Wells Fargo Bank
- TCF

Credit unions

- Sooper Credit Union
- Credit Union of Denver
- Denver Community CU
- Bellco Credit Union
- Public Service CU
- Westerra Credit Union
- Credit Union of Colorado
- Denver Fire Department Federal CU
- Partner Colorado CU
- Security Service Federal CU

Calculate compound interest.

Julia invested \$1,234 in 1996 in a savings account with an annual interest rate of 1.2% compounded monthly. What should her account balance be in 2015?

$$F(19) = 1234 \left(1 + \frac{.012}{12}\right)^{(12 \cdot 19)}$$

$$\$1549.83$$

IWBAT

- understand when to use the rule of 72 versus the rule of 69
- use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Via

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Banking: The Rule of 72 (and 69)

Calculate and estimate the amount of time for an investment to double.

How long will it take \$2,500 to double at an annual interest rate of 4%? Use the TVM solver.

$$\begin{array}{l} N = ? \\ I\% = 4 \\ -7000 \quad PV = -2500 \\ 14000 \quad PMT = 0 \\ \quad \quad \quad FV = 5000 \\ \quad \quad \quad P/Y = 1 \\ \quad \quad \quad C/Y = 1 \end{array}$$

$$\begin{array}{l} 17.67 \text{ yr} \\ 17 \text{ yr } 8 \text{ mo} \\ 17.67 \text{ yr} \end{array}$$

Banking: The Rule of 72 (and 69)

Rule of 72

If you save your money in an account with **annual interest rate** r , you can approximate the number of years needed to double your **principal** by

$$\frac{72}{r \cdot 100}$$

This approximation works for compounding periods up to weekly. *Monthly, quarterly, semi-annually, annually*

How long will it take \$2,500 to double at an annual interest rate of 4%?

$$\frac{72}{.04 \times 100} = \frac{72}{4} = 18 \text{ yr}$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

To have \$1,000,000 by your 60th birthday, how much do you need to invest at 6% interest now? Solve using the Rule of 72.

$\frac{72}{6} = 12 \text{ yr to double}$	42 yr	60 y.o.	\$1,000,000
		48	\$500,000
		36	\$250,000
		24	\$125,000
		18	\$93,750
		12	\$62,500

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Rule of 69

If you save your money in an account with annual interest rate r , you can approximate the number of years needed to double your principal by

$$\frac{69}{r \cdot 100}$$

Use this approximation for daily and continuous compounding.

$$6\% \quad \frac{69}{6} = 11.5 \text{ yr}$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Inflation (reduction in buying power)

Use the Rule of 72 to calculate how long it will take for your buying power to halve with a 1.9% rate of inflation. Please answer in years and months.

$$\frac{72}{1.9} = 37 \text{ yr } 11 \text{ mo}$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Vocabulary: Appendix A.3 Key Terms

Practice: 4.4.2

Quiz 4.2.2

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

**Explain when to use the Rule of 72
and when to use the Rule of 69.**

Rule of 72 is for compounding up to
Weekly (annually, semi-annually, quarterly,
monthly, weekly)

Rule of 69 is for daily and continuous
compounding.

These Rules are used to calculate how
much time it takes to double our
investment. We need to know the annual
interest rate.

IWBAT

- understand how checking accounts work, including interest
- how to write a check.

Via

- Capturing notes on my graphic organizer/note frame
- Whole class discussions to introduce and clarify key concepts
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Banking: Checking Accounts

What is a checking account? Why use one?

Your money is saved for future use. You can take money out with a debit card swipe or write a check.

Checking accounts save you from carrying large amounts of cash, but accessing the money is easy.

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Understand the fees associated with a checking account.

→ Overdraft
ATM
Swipe fee
teller fee
per check fee
check cashing
no direct deposit
minimum balance
activation
large withdrawal

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Parts of a check

The image shows a sample check with the following details and handwritten annotations:

- Account Holder / Payer:** ZACK MORIS, 13 BAYSIDE WAY, LOS ANGELOS, CA 90001. (Circled in yellow with "Acct-holder" and "Payer" written above it.)
- Date:** 20. (Circled in yellow with "Date" written above it.)
- Check Number:** 101. (Circled in yellow with "101" and "ck #" written next to it.)
- Payee:** THE APEX BANK. (Circled in yellow with "Payee" written above it.)
- Amount:** \$ ##. (Circled in yellow with "Amt in words and/or" written above it.)
- Bank:** SEATTLE MAIN OFFICE, THE APEX BANK, 20 FAKE STREET, SEATTLE WA 98101. (Circled in yellow with "Acct" and "AT" written next to it.)
- Memo:** Reminder. (Circled in yellow with "Reminder" written above it.)
- Signed:** Zack Moris. (Circled in yellow with "Zack Moris" written next to it.)
- Routing Number:** 123456789. (Circled in yellow with "Routing Acct" written above it.)
- Check Number (bottom):** 0101. (Circled in yellow with "0101" written next to it.)

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Your \$950 rent is due on the first of the month to Speyside Properties. Fill out the check for next month's rent payment.

ZACK MORIS
13 BAYSIDE WAY
LOS ANGELOS, CA 90001

101

4/30 20 15

PAY Speyside properties \$ 950⁰⁰/₁₀₀
TO THE ORDER OF nine hundred fifty ⁰⁰/₁₀₀ DOLLARS

SEATTLE MAIN OFFICE
THE APEX BANK
20 FAKE STREET, SEATTLE WA 98101

MEMO may's rent SIGNED Zack Moris

⑆121000248⑆ 12345678⑈ 0101

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Check register

Check Number	Date	Description of Transaction	Payment/Debit (-)	Fee	Deposit/Credit (+)	Balance

Number	Date	Transaction	Withdrawal	✓	Deposit	Balance
						\$2874.26
101	4/30	Speyside Prop - 5/rent	950 00			1924 26
	4/30	Hooters	50 00			1874 26
	5/1	Pay check			2000 00	3874 26
	5/1	Cash withdrawal	80 00			3794 26

Record the rent check in your register.
Your previous balance was \$2874.26.

IWBAT understand how checking accounts work,
including interest and how to write a check.

Banking: Checking Accounts

Check endorsements



IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Deposit slip

CHECKING DEPOSIT

DEPOSIT TO THE ACCOUNT OF
NAME Dedrae Q

DATE 4/30/15

PLEASE BE SURE EACH ITEM IS PROPERLY ENDORSED. USE OTHER SIDE TO LIST ADDITIONAL CHECKS.

903

YOUR BANK

DEPOSITS SUBJECT TO CORRECTION BY PROOF DEPARTMENT
ALL ITEMS CREDITED SUBJECT TO THE FINAL PAYMENT

ACCOUNT NUMBER
* 1 2 3 4 5 6 7 8

9876543210

☒ CASH

Zack M

work

SUBTOTAL

+LESS CASH RECEIVED

\$ 1700.00

900	00
1000	00
1900	00
200	00
1700	00

03

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Vocabulary: Appendix A.3 Key Terms
Quiz 3.3.2

IWBAT understand how checking accounts work,
including interest and how to write a check.

Banking: Checking Accounts

Fill out the check register completely.
The previous balance was \$312.21.

ACCOUNT SUMMARY

DEPOSITS AND ADDITIONS

DATE	DESCRIPTION	AMOUNT
1/03	DIRECT DEPOSIT FROM EMPLOYER	\$252.67
1/10	ATM CASH DEPOSIT	\$100.00
1/22	ONLINE TRANSFER FROM SAVINGS ACCOUNT	\$100.00
TOTAL DEPOSITS AND ADDITIONS		\$452.67

ATM & DEBIT CARD WITHDRAWALS

DATE	DESCRIPTION	AMOUNT
1/05	CARD PURCHASE Spotify USA 877-778-1161 NY Card	\$9.99
1/06	CARD PURCHASE Netflix	\$7.99
1/09	CARD PURCHASE Gulf Oil 91629153 Holtsville NY Card	\$65.00
1/17	CARD PURCHASE WITH PIN Waldbaum's Stony Brook NY	\$67.02
1/30	ATM CASH WITHDRAWAL Nesconset Highway	\$100.00
TOTAL ATM & DEBIT CARD WITHDRAWALS		\$250.00

CHECKS PAID

DATE	DESCRIPTION	AMOUNT
1/05	CHECK #0017 VERIZON WIRELESS	\$125.22
1/24	CHECK #0018 STATE FARM AUTO INSURANCE	\$200.00
TOTAL CHECKS PAID		\$325.22

FEES AND OTHER WITHDRAWALS

DATE	DESCRIPTION	AMOUNT
1/02	MONTHLY SERVICE FEE	\$12.00
TOTAL FEES AND OTHER WITHDRAWALS		\$12.00

When might you incur service fees or overdraft charges on a checking account?

When you spend more than is in your checking account, you receive an overdraft charge.

Service fees: ATM, teller, etc.

IWBAT


- reconcile a checkbook
- explore some common accounting errors and how to detect them.

Via

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Banking: Balancing your Checkbook

Learning how to read bank statements.

 FIRST BANK OF APEX 1234 Main St. City, State		CHECKING ACCOUNT STATEMENT Page : 1 of 1			
JOHN DOE 1111 Balance St. City, State		Statement period 2010-10-09 to 2010-11-08		Account No. 123-45-678	
Date	Description	Ref.	Debits	Credits	Balance
2010-10-08	Previous balance		—	+	.55
2010-10-14	Payroll Deposit - HOTEL			694.81	695.36
2010-10-14	Web Bill Payment - MASTERCARD	9685	200.00		495.36
2010-10-16	ATM Withdrawal - INTERAC	3990	21.25		474.11
2010-10-16	Fees - Interac		1.50		???
*** Totals ***			???	???	

101
102X
103
104

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Reconciliation — to come to an agreement
to make your checkbook and
bank statement agree

What you need to reconcile:

1. deposits (direct deposit or otherwise)
2. interest
3. checks cleared
4. outstanding checks
5. bank fees
6. cash withdrawals
7. online bill payments
8. debit card transactions
9. transfer of funds

IWBAT reconcile a checkbook and explore some
common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Reconciling tools

Verifying That Two Groups of Numbers May Add Up to the Same Value

1. Add all *digits* of all the numbers in each column.
2. Do this again if needed until you reach a single digit.
3. Compare the two single digits you get in the end.

If they do not agree, then the numbers in the two columns cannot add up to the same value.

Imagine the numbers in the first column are 23, 14, and 9, and the second column contains 20 and 27. You want to know if the columns are balanced — that is, do the numbers in the first column add up to 47?

$$\begin{array}{r} 23 \\ 14 \\ 9 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ 5 \\ 9 \\ \hline 19 \\ \hline 10 \\ \hline 1 \end{array} \quad \begin{array}{r} 20 \\ 27 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ 9 \\ \hline 11 \\ \hline 2 \end{array} \quad \begin{array}{r} 125 \\ \hline 8 \end{array}$$

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Transposed numbers

Columns should add to the same total, but do not. Subtract column sums. If the difference is divisible by 9, look for transposed numbers (e.g. 34 instead of 43).

34 43

596 695

99

Divisible by 9

34	43
48	84
62	62
<hr/>	<hr/>
144	180

36

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Vocabulary: Appendix A.3 Key Terms

Practice: 4.6.2

Quiz 3.4.2

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

What does it mean to reconcile your checkbook?

To get our checkbook and bank statement to agree. Often the checkbook needs updating with bank fees.

IWBAT

- understand the various fees that may be associated with a checking account
- decide whether a checking account is appropriate given a person's particular needs.

Via

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- Completing practice problems collaboratively with teacher support

Banking: Comparing Checking Accounts

Compare two checking accounts based on various factors.

- Debit card?
- Per check fee?
- ATM fee?
- Monthly service fee?
 - Minimum balance?
 - Direct deposit?
- Interest?
 - Final balance?
 - Average monthly balance?

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

Banking: Comparing Checking Accounts

Typical account features

Account Features	Basic Free Checking	Student Checking	Regular Checking	Interest Checking
ATM access	FREE ✓	FREE ✓	FREE ✓	FREE ✓
Online Bill Pay E-mail Alerts Online Check Images Online Statements	FREE ✓	FREE ✓	FREE ✓	FREE ✓
Earns Interest				YES ✓
Monthly Service Fee	None with direct deposit, or 5 or more debit card purchases during each statement period; otherwise \$6	None, must be a student 18+ years old	Waived with \$1000 minimum checking balance; otherwise \$12	Waived with \$1500 minimum checking balance; otherwise \$20
Debit Card	FREE ✓	FREE ✓	FREE ✓	FREE ✓

Fractional reserve banking -

A type of banking system in which only a fraction of bank deposits are backed by actual cash on hand. The rest of the money deposited is not available for immediate withdrawal.

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

Banking: Comparing Checking Accounts

If Bank A charges a monthly service fee of \$2.50 and a per-check fee of \$0.15, while Bank B charges a monthly service fee of \$4 and a per-check fee of \$0.05, which bank will charge a customer *more* in fees if she writes 18 checks per month, and by how much? Is this bank ever a better choice?

$$\begin{array}{rcl} A) 0.15x + 2.50 & & 0.15x + 2.50 = 0.05x + 4 \\ & -0.05x & -0.05x \end{array}$$

$$B) 0.05x + 4$$

$$\begin{array}{rcl} 0.10x + 2.50 = 4 & & \\ -2.50 & -2.50 & \end{array}$$

$$<15 A) .15(18) + 2.50 = \$5.20$$

$$\frac{0.10x}{0.10} = \frac{1.50}{0.10}$$

$$>15 B) .05(18) + 4 = \$4.90$$

$$x = 15 \text{ checks}$$

Bank A is more by \$0.30

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

Banking: Comparing Checking Accounts

Vocabulary: Appendix A.3 Key Terms
Practice: 4.7.2

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

What would a good checking account for you include?

No Fees.

- checks
- monthly
- ATM
- card use
- activation
- large withdrawal

No overdraft charge

Interest

Banking: Savings Accounts

Explain the difference between a savings account and a checking account.

Savings sits in an account for a long time.

Savings collect interest.

Withdrawal process or transfer to checking

Checking money moves in & out easily
& usually does not collect interest

Banking: Savings Accounts

IWBAT

- work with APR and APY to calculate interest earned from a savings account
- perform calculations involving deposits and withdrawals.

Via

- Capturing notes on my graphic organizer/note frame
- Whole class discussions to introduce and clarify key concepts
- Completing practice problems collaboratively with teacher support

Banking: Savings Accounts

APR vs. APY

APR is the annual percentage *rate*. It is the annual rate of interest without taking into account the number of compounding periods.

APY is the annual percentage *yield*. This is a measure of the full amount of money earned over a year, which includes any compound interest.

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

APY is higher than **APR** if there is more than one compounding period in a year, so *lenders* often express their interest rates in the form of APR since it is lower. *Borrowers* (such as banks and other savings institutions) often express interest rates in APY since it is higher.

$$r = \text{APR} \qquad \text{APY} = \left(1 + \frac{r}{n}\right)^n - 1$$

6% APR
Compounded
monthly

$$\text{APY} = \left(1 + \frac{.06}{12}\right)^{12} - 1$$
$$\text{APY} = 6.17\%$$

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

"interest calculated on an annual basis, accrued daily, and paid monthly."

7) The beginning balance of Otto's savings account for the month of May was \$1800, and it remained this way for the first 12 days of the month. On May 13, Otto made a withdrawal of \$400, so his balance changed, and it remained the same for a total of 8 days. On May 21, Otto made a deposit of \$1200, so his balance changed again, and it remained the same for a total of 11 days to finish out the month. If Otto's savings account has an APR of 7.3%, calculates interest daily, and pays interest at the end of the month, how much did Otto earn in interest in the month of May?

$$1800 \left(1 + \frac{.073}{365}\right)^{12} - 1800 = 4.32$$

$$1400 \left(1 + \frac{.073}{365}\right)^8 - 1400 = 2.24$$

$$2600 \left(1 + \frac{.073}{365}\right)^{11} - 2600 = 5.72$$

$$\$12.28$$

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

Vocabulary: Appendix A.3 Key Terms

Practice: 4.8.2

Quiz 4.3.2

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

What is the difference between APR and APY?

APY is higher than APR if there is more than one compounding period in a year.

IWBAT

- compare two savings accounts based on various factors
- examine various types of savings accounts based on risk and liquidity.

Via

- Capturing notes on my graphic organizer/note frame
- Whole class discussions to introduce and clarify key concepts
- Completing practice problems collaboratively with teacher support

Banking: Comparing Savings Accounts

Understanding how FDIC insurance works.

The FDIC insures deposits to all types of accounts including:

- checking accounts
- basic savings account
- money market
- certificate of deposit (CD)

<https://www.fdic.gov/deposit/covered/categories.html>

What is covered and how much?

\$250,000 per person

If you have \$400,000, how should you divide it up?

Or should you?

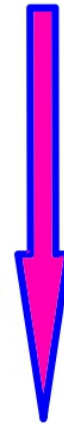
1 or more joint accounts

2 or more single accounts

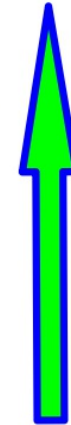
Banking: Comparing Savings Accounts

Types of Savings Accounts

- piggy bank
- basic savings account
- money market savings
- certificate of deposit (CD)
- savings bond



Increasing
Interest %



Increasing
Liquidity

Liquidity - the ability to access cash quickly

General rule: the higher the interest rate, the lower the liquidity

IWBAT compare two savings accounts based on various factors and examine various types of savings accounts based on risk and liquidity.

Banking: Comparing Savings Accounts

Vocabulary: Appendix A.3 Key Terms

Practice: 4.9.2

Quiz 4.4.2

IWBAT compare two savings accounts based on various factors and examine various types of savings accounts based on risk and liquidity.

4.10 Savings & Checking Wrap up

3/08/16

How does FDIC insurance work?

Deposits for all types of accounts
up to \$250,000 per bank
per account holder

Banking: Savings & Checking Wrap up

IWBAT

- demonstrate my proficiency in this unit on practice problems before the unit test.

Via

- Capturing notes on my graphic organizer/note frame
- Whole class discussions to introduce and clarify key concepts
- Completing practice problems collaboratively with teacher support

Banking: Savings & Checking Wrap up

Complete Practice 4.10.2

Simple Interest

$$I = Prt \quad FV = P + Prt$$

Compound Interest

$$A(t) = P(1 + r/n)^{(n \cdot t)}$$

$$APY = (1 + r/n)^n - 1$$

**Turn in your banking presentation by
3:30 PM today.**

(e-mail, thumb drive, or shared Google doc.)
mmelosh@dpsk12.net

IWBAT demonstrate my proficiency in this unit
on practice problems before the unit test.

Banking: Savings & Checking Wrap up

3/09/16

Final questions on 4.10.2?

#4 graph on calculator & transfer to
your paper

IWBAT demonstrate proficiency on my unit test.

Complete Unit Test 4.10.5 (TST)

IWBAT demonstrate proficiency on my unit test.

